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Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes on its mission to the Republic of Korea

Note by the Secretariat

In the present report, submitted pursuant to Human Rights Council resolution 27/23, the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes shares his findings and makes recommendations on the basis of his visit to the Republic of Korea. He introduces views in relation to recent changes to several national laws, which are aimed at better addressing human rights impacts related to exposure to and mismanagement of hazardous substances and wastes. He also presents his observations on situations in which these laws are applied to those in vulnerable situations.

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Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes on its mission to the Republic of Korea*

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* Circulated in the language of submission only.

I. Introduction

1. The Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes conducted an official visit to the Republic of Korea from 12 to 23 October 2015. The purpose of the visit was to monitor and assess steps taken by that country to protect human rights implicated by the management of hazardous substances and wastes throughout their life cycle.

2. The Special Rapporteur wishes to thank the Government of the Republic of Korea for its invitation and the effort made to facilitate meetings with government authorities. During the visit, the Special Rapporteur met with representatives from several government agencies, the National Human Rights Commission, and the private sector. The Special Rapporteur also had a wide range of consultations with members of civil society organizations and communities in Gimpo, Danyang, Wolseong and Boryeong.

3. The Republic of Korea has experienced rapid industrialization and economic growth since the 1960s, resulting in a dramatic transformation of the country. The manufacturing industry, including both producers and downstream users of industrial chemicals, played a key role in economic development. From 1962 to 2008, the gross domestic product (GDP) of the country increased from $2.3 billion to $928.7 billion. The Republic of Korea ranks fifth in the global chemical industry, with its sales reaching €132 billion in 2013.[1]

4. Rapid increases in chemical production and use demand commensurately robust systems for chemicals management. However, during this period several cases of deadly chemical accidents, occupational diseases and consumer exposure occurred.

5. Following such incidents, legislation and policies for chemicals management were revised and reinforced. Section II and III of the present report introduce certain laws, policies, and relevant government institutions.[2] Section IV addresses specific cases in which the Special Rapporteur observed human rights impacts as a result of mismanagement of and exposure to hazardous substances and wastes.

II. Recent changes to the legal framework for hazardous substances and wastes

6. The Republic of Korea has ratified numerous international human rights treaties and has the obligation to protect, respect and fulfil human rights in accordance with those treaties.[3] Furthermore, the country is a party to several international treaties related to chemicals management, the environment and labour issues. Pursuant to article 6 of the Constitution of the Republic of Korea, all international treaties have the same effect as domestic law. In addition, the Constitution stipulates several specific human rights implicated by hazardous substances: the right of citizens to "human dignity" and "to pursue happiness" (art. 10); the principle of non-discrimination (art. 11); the right to information as implied in the freedom of expression (art. 21); and the right to a healthy and pleasant environment (art. 35).

[1] The European Chemical Industry Council, Facts and Figures 2014.

[2] Due to strict word limitations, the present report can neither discuss all of the laws and policies in the Republic of Korea for the management of chemicals, nor cover those which are discussed in detail.

[3] Ratification status is available from http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=141&Lang=EN.

7. To better protect public health and the environment, the Republic of Korea has recently enacted or amended certain national laws, some of which are briefly discussed below.[4] The Special Rapporteur wishes to highlight some of the laws that are aimed at addressing challenges experienced by the Republic of Korea during the aforementioned period. The specific applications of some of these laws are introduced in Section IV of the report.

A. Prevention

Act on the Registration and Evaluation of Chemical Substances

8. The Act on the Registration and Evaluation of Chemical Substances is aimed at protecting public health and the environment by utilizing available information about industrial chemicals.[5] The Act ensures that hazardous substances are registered and assessed for their risks.

9. The Special Rapporteur welcomes several aspects of the Act. For instance, it requires chemical manufacturers to submit available information about the formula, usage, properties, hazards and risks of chemical substances during registration (art. 14). It also stipulates that, if necessary for protection of human health and the environment, information about hazardous chemical substances cannot be considered as confidential business information and is not subject to protection under the Unfair Competition Prevention and Trade Secret Protection Act.[6] Furthermore, it is possible that the Act on the Registration and Evaluation of Chemical Substances will generate and make available health hazard information that would otherwise be unknown for chemicals produced at lower volumes, going beyond comparable legislation in the European Union.

10. Nonetheless, the Special Rapporteur wishes to highlight a few concerns. Depending on the manner in which the Act and analogous legislation is implemented around the world, existing information gaps on the health hazards of tens of thousands of industrial chemicals in commerce may not be closed. According to the Government, it is when a substance is deemed to have potential risks that a manufacturer is required to generate and register hazard and exposure information for the substance.[7] Without sufficient information on health hazards or usage, it is not clear how the Government will determine which out of tens of thousands of industrial chemicals have potential risks. The Act does not adequately address the very problem that inspired the legislation: the risk that consumers will be exposed to substances without adequate information regarding their health hazards (see section on protecting consumers below). However, the Government explained that all non-phase-in substances are required to be registered regardless of the quantity or their hazardous properties, and that it has a plan to require all chemical manufacturers to generate such information in the long run. In addition, there is considerable reliance within the Act on the full implementation of analogous legislation in Europe, which may present a problem if such legislation is not implemented as envisioned.

[4] Due to the word limit, several laws, including the act on the management of persistent organic pollutants, which implements the Stockholm Convention on Persistent Organic Pollutants, ratified by the Republic of Korea in 2007, are not introduced.

[5] Legislation No. 11789 (entered into force on 1 January 2015).

[6] Article 30 of the Enforcement Decree.

[7] Government submission of 15 July 2016.

Chemical Control Act

11. The Chemical Control Act purports to "protect public health and the environment by systematically managing chemical substances and preventing chemical accidents" (art. 1).[9] The Act amends the Toxic Chemical Control Act in response to the 2012 hydrofluoric acid leak in Gumi (see para. 76 below). While the latter Act required accidents to be reported only when human health or environmental risks existed, the Chemical Control Act requires entities handling substances to formulate a risk management plan that includes chemical leakage scenarios, emergency action plans and damage restoration (arts. 4-6). The changes made by the Chemical Control Act include the addition of "off-site" impact assessments and risk control plans to prevent "chemical accident leakage" from facilities handling hazardous substances and wastes.

Environmental Health Act

12. The Environmental Health Act is aimed at preventing impacts on human health from environmental factors, and reducing related impacts and damage by designating certain health impacts as environmental disease (arts. 1 and 9).[10] The preferential protection of children and other groups of individuals that are at greater risk of harm from exposure to hazardous factors is highlighted (art. 4).

B. Waste management

Resource Circulation of Electrical and Electronic Equipment Act

13. The Resource Circulation of Electrical and Electronic Equipment Act regulates recycling systems for the resources used in electrical and electronic equipment, and vehicles (art. 1).[11] It requires the Government to establish policies on the recycling of resources and to develop technologies for inhibiting the use of hazardous substances in electrical and electronic equipment or vehicles (art. 4). Manufacturers and importers of electrical and electronic equipment should minimize the use of hazardous substances in the manufacturing or import of equipment (art. 5).

Act on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal

14. The Act on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal is aimed at preventing environmental pollution caused by the transboundary movement of wastes,[12] and at improving international cooperation by controlling the export, import and inland transit of wastes in line with the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which was ratified by the Republic of Korea in 1994. The Government amended the Enforcement Decree in July 2001, providing the legal basis for implementing the Basel Convention Ban Amendment (Decision III/1). The Ban Amendment is designed to address challenges faced by developing countries and countries with economies in transition in controlling imports of hazardous and other wastes that they are unable to manage in an environmentally sound manner but continue to receive.[13] However, the article provides that it will only be enforced

[9] Legislation No. 12490 (entered into force on 1 January 2015).
[10] Legislation No. 11619 (entered into force on 2 July 2013).
[11] Legislation No. 18946 (entered into force on 22 March 2009).
[12] Legislation No. 10911 (entered into force on 26 October 2011).
[13] See www.basel.int/Implementation/LegalMatters/BanAmendment/Overview/tabid/1484/Default.aspx.

when the Ban Amendment comes into force, which it has not. The Republic of Korea has not ratified the amendment.

C. Remedy

Liability, Compensation and Relief from Damages Caused by Environmental Pollution Act (Liability Act)

15. The Special Rapporteur welcomes the Liability Act,[13] which entered into force on 1 January 2016, after his visit. The objective of the Act is to help affected individuals obtain an effective remedy for harm due to air, water, soil, noise and marine pollution. Prior to enactment, victims were often unable to prove liability due to missing information about pollution; the lack of a legal framework to regulate such liability; and the absence of a compensation process for damages incurred. The Liability Act addresses these challenges for certain individuals who have been affected by environmental pollution by presuming causation and reversing the burden of proof (art. 9), namely, in case involving a high probability that a facility may have caused environmental pollution. This is a step towards the Government's implementation of its obligation to provide for effective remedies for those whose rights are affected by environmental harm, as stipulated in international human rights treaties and other international agreements.[14]

Environmental Dispute Adjustment Act

16. In addition to litigation through the judicial system, under the Environmental Dispute Adjustment Act[15] victims of environmental pollution can access the National Environmental Dispute Resolution Commission, established in 1991 under the Ministry of Environment. That is a quasi-judicial body that resolves disputes regarding health, property, and psychological damage caused by environmental pollution through mediation or arbitration.

III. Institutional framework for chemicals management

17. In addition to legislative measures, the Government is obliged to adopt administrative, educative, social and other measures to realize the rights recognized in the International Covenant on Economic and Social Rights (art. 2 (1)) and the International Covenant on Civil and Political Rights (art. 2 (2)).

18. The Special Rapporteur welcomes several measures taken by the Government to better protect human rights, in particular the rights to life and health, from hazardous substances. The Government launched "comprehensive plans for safety management of chemical substances" in July 2013.[16] As a result, in 2014, an institution responsible for the prevention of and responses to chemical accidents, the National Institute of Chemical Safety,[17] was established. In January 2015, a division exclusively dedicated to chemical

[13] Legislation No. 12949.

[14] Universal Declaration of Human Rights, art. 8; International Covenant on Economic, Social and Cultural Rights, art. 2; and Principle 10 of the Rio Declaration on Environment and Development. See also A/HRC/25/53, paras. 41-43.

[15] Legislation No. 8955 (entered into force on 22 September 2008).

[16] Response received from the Ministry of Environment (24 December 2015). See also ECOREA, *Environmental Review 2015, Korea*, vol. 3, chap. 6, pp. 13-19.

[17] More information available from http://nics.me.go.kr.

management, the Chemical Safety Division, was established within the Ministry of Environment.

19. The Ministry of Environment operates the National Chemicals Information System, from which users can find lists of chemicals distributed, the hazards and risks of diverse substances, the current state of management at home and abroad and volumes of distribution and release.[18] A pollutant release and transfer register collects and makes available the volume of chemical pollutants that are released into the environment in the course of their manufacture, utilization or recycling from 39 industries.[19]

20. Since 2005, the Ministry of Environment has been conducting the Korean National Environmental Health Survey to investigate levels of exposure to hazardous substances to help inform environmental health policies.[20] For instance, the Maternal and Infant Health Impact Survey, implemented since 2006, traces and monitors the exposure levels of pregnant women and infants to heavy metals, endocrine disruptors, volatile organic compounds and other substances likely to have adverse health impacts.

21. According to information shared with the Special Rapporteur, health impact surveys have also been carried out among those in vulnerable situations in the surroundings of abandoned mines and at certain industrial complexes.

22. Regarding waste management, in 2002 the Ministry of Environment implemented an online waste disposal verification system called Allbaro.[21] The system tracks waste disposal in real time, thereby reducing the chance that wastes will be abandoned or illegally treated.[22] The Ministry of Environment undertook a project to establish a similar electronic transfer system for the integrated management of hazardous wastes in Viet Nam from 2010 to 2014.

23. The Ministry of Environment is also implementing measures to manage and control specific hazardous substances.[23] For instance, certain mercury reduction measures have been implemented since 2006, including an agenda to prevent impacts from mercury on the marginalized or those in vulnerable situations.[24] In addition, the Ministry of Environment is implementing certain asbestos control policies, as well as measures to provide an effective remedy to victims, as discussed above.[25]

24. Several other ministries are involved in the management of hazardous substances, such as the Ministry of Employment and Labour; the Ministry of Trade, Industry and Energy; the Ministry of Food and Drug Safety; the Ministry of Public Safety and Security; the Nuclear Safety and Security Commission; and the Ministry of Agriculture, Food and Rural Affairs.

[18] Ibid.

[19] Available from http://ncis.niet.go.kr/triopen.

[20] ECOREA, *Environmental Review 2015*, vol. 3, chap. 6, pp. 2-3.

[21] Available from www.allbaro.or.kr.

[22] See, generally, "Allbaro online waste disposal verification system", *Korea Environmental Policy Bulletin*, issue 1, vol. VI (2008).

[23] See, generally, ECOREA, *Environmental Review 2015*, vol. 3, chap. 6, pp. 18-24.

[24] Mercury control plan (2006-2010) and second and third comprehensive plans on mercury control (2011-2015 and 2016-2020).

[25] The Asbestos Safety Management Act (2012) requires management of asbestos throughout its life cycle.

IV. Issues in focus

25. Despite the laws and policies implemented by the Government, the Special Rapporteur observed several areas in which Government responses and measures warrant further action.

26. The Special Rapporteur underlines the State's obligation to protect and realize the rights to life and to enjoy the highest attainable standard of health. In cases involving childhood exposure, the Special Rapporteur reiterates the State's obligation to combat disease by taking into consideration the dangers and risks of environmental pollution.[26]

27. Businesses have the responsibility to respect human rights.[27] Business enterprises are expected to carry out human rights due diligence in order to identify, prevent, mitigate and account for how they address their impacts on human rights.

A. Protecting consumers from hazardous substances in products

28. Consumers in the Republic of Korea, not unlike other consumers around the world, are exposed to hundreds of substances with known and unknown hazardous properties through consumer goods.

29. Repeatedly, toxic substances have been banned by Governments or voluntarily withdrawn by businesses from use in consumer products only after evidence of risk or harm. The United Nations acknowledged in 2009 that the presence of toxic chemicals in products was a global problem.[28]

30. During his visit, the Special Rapporteur was deeply disturbed by the case of "humidifier sterilizers" marketed and sold to consumers in the Republic of Korea without adequate investigation of their risks to human health and life.[29] As of December 2015, the Government had recognized that 95 people had died and 221 had suffered adverse health impacts after inhaling hazardous chemicals which were added to humidifier water tanks and then dispersed through the humidifier inside a home environment. The chemical mixture was marketed on the premise that it would promote health and well-being. The actual number of victims is unknown and is still being evaluated, as described below. The Special Rapporteur is concerned that there may be additional victims that have not yet been identified.

31. Oxy Co. Ltd, which is based in the Republic of Korea, has manufactured and sold its signature humidifier sterilizer product ("Oxy Sak Sak") in that country since 1998. In 2001, Reckitt Benckiser, based in the United Kingdom of Great Britain and Northern Ireland, acquired the company and continued to sell the Oxy Sak Sak, which contained PHMG, one of the hazardous substances responsible for the health damages. Oxy Sak Sak accounted for 60-80 per cent of the market.[30] Fourteen different types of humidifier sterilizers were

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[26] Convention on the Rights of the Child, art. 24 (2) (c).

[27] A/HRC/17/31.

[28] "Chemicals in products" has been a priority area under the Strategic Approach to International Chemicals Management since 2009.

[29] A joint letter of allegation regarding the situation was sent to the Government on 12 February 2016 and a response was received on 20 April 2016. Both can be found in document A/HRC/32/53.

[30] On 12 February 2016, a joint letter of allegation was sent to these companies (see A/HRC/32/53, case Nos. OTH 2/2016, OTH 3/2016, OTH 4/2016, OTH 5/2016, OTH 6/2016, OTH 7/2016, OTH 8/2016, OTH 9/2016 and OTH 10/2016) and to the Government of the States in which the companies are incorporated. Responses were received from Costco Wholesale on 20 March 2016 and Health Hygiene Home RB on 12 April 2016 and 3 May 2016.

manufactured and sold from the 1990s until a mandatory recall in 2011. Other companies implicated include E-mart Co. Ltd., GS Retail Co. Ltd., Lotte Mart Co. Ltd., Home Plus Co. Ltd., ButterflyEffect Inc., Costco Wholesale Korea, Havit Chemical Co. Ltd., SK Chemicals, and Aekyung Co. Ltd.

32. From 2006 to 2011, several individuals were admitted to hospitals for respiratory failure, acute pneumonia and other respiratory diseases of unknown origin. The Korea Centers for Disease Control and Prevention started an investigation in April 2011 and linked the first set of cases of unknown respiratory diseases to the humidifier sterilizers in August 2011. After an epidemiological study and animal tests, the causal relationship between two hazardous substances (PHMG and PGH) in the humidifier sterilizers and respiratory diseases was announced in November 2011 and finally confirmed in February 2012.

33. As of December 2015, following two investigations by the Government, 530 possible victims had been identified, with a total of 221 individuals acknowledged to be victims, including 95 who had died. The Government was continuing to investigate with regard to another 752 alleged victims. Civil society groups claim there are at least 1,848 victims, of which 266 have died. Many of the victims identified, including the deceased, were older persons, pregnant women, new mothers or very young children exposed during the sensitive prenatal and/or postnatal periods. On 28 April 2016, the Minister of Environment stated that he would broaden the criteria for victim recognition.

34. In May 2016, Oxy Reckitt Benckiser and Reckitt Benckiser "accepted full responsibility for the role that this product played in these health issues, including deaths". In stating their "continuing intention to do whatever we can to provide full resolution to these cases", Reckitt Benckiser and Oxy Reckitt Benckiser announced their intention "to establish a compensation fund for those directly impacted, to be administered by independent experts, and a humanitarian fund for all others who believe they have been affected by the humidifier sterilizer issue".[11]

35. While the Government reviewed the safety of the two hazardous substances when they were used in carpets and rubbers, no additional review was required by law before their use as components of humidifier sterilizers. The Government explained that at that time there was no legal obligation of additional hazard review when the use of a substance changed. Reckitt Benckiser, a manufacturer of pharmaceutical, health-care and pesticide products, with considerable expertise on the interaction of chemicals and human health, explained that it had examined whether relevant substances were categorized as chemicals of concern, but did not investigate whether health and safety information was actually available about the hazards of the substance. SK Chemical, a manufacturer of chemicals used by Reckitt Benckiser, would not comment about whether it knew the chemicals were being used in humidifiers without adequate information about their potential health risks. The companies did not test potential health impacts, despite the fact that inhalation and dermal exposure could be reasonably foreseen for the chemical added and dispersed indoors through a humidifier.

36. Reckitt Benckiser and other companies appear to have been in compliance with relevant legislation of the Republic of Korea concerning hazardous substances at the time and claim that they withdrew the product from sale three months before the Government issued a mandatory recall. In response, the Republic of Korea adopted the Act on the Registration and Evaluation of Chemical Substances, which requires the registration of a hazardous substance to be amended when its uses, hazards or risks change (art. 12). The

[11] www.rb.com/media/news/2016/may/oxy-rb-and-humidifier-sterilizers-in-korea.

Special Rapporteur notes that several administrative measures were taken by the Government once the sterilizer was linked with health impacts in 2011, including the mandatory (yet belated) recall of humidifier sterilizers, steps to identify victims, and reclassification of the sterilizers as a sanitary aid, which would subject them to additional safety tests. Companies were fined by the Government for falsely advertising the humidifier sterilizers as "safe to humans".[12]

37. Various criminal and civil suits are pending. Regarding criminal charges, one former chief executive officer of Oxy Reckitt Benckiser was prosecuted, and other former chief executive officers are under investigation.

38. A civil lawsuit was filed against the Government for compensation, in which it was argued that the Government was liable for their injury caused by omission of civil servants. The Seoul Central District Court found that the Government did not breach its duty of care due to the what the Court believed to be constantly changing standards and studies related to hazardous substances and, hence, held that the standard of technology and social awareness at the time should be the standard applied to assess whether the Government's response and measures were sufficient.[13]

39. In the view of the Special Rapporteur, Reckitt Benckiser and other companies that sold humidifier sterilizers/disinfectants failed to conduct a reasonable degree of human rights due diligence about the safety of the chemicals in humidifier disinfectants it sold to consumers. For any company, particularly a pharmaceutical company well versed in the complex interactions of chemicals with the human body, to only resort to examining whether relevant substances are on lists of chemicals of concern is completely insufficient and unreasonable. Reckitt Benckiser would not have resorted to this method of identifying risks for one of its pharmaceutical products, yet it did so for a consumer product that obviously would be inhaled by people, including young children and pregnant women, through normal use.

40. Likewise, based on information available to the Special Rapporteur, it appears that SK Chemical and other chemical manufacturers also failed to conduct due diligence on potential human rights impacts and have not been held accountable for this failure. For example, information has not been made available to the Special Rapporteur that they conducted risk assessments concerning the risk of inhalation by pregnant women and newborn children, took steps to understand where the chemicals they manufactured and sold were being used, or alerted downstream businesses of both known and unknown risks.

41. In the Special Rapporteur's view, the failure of these and other companies implicated to respect human rights was a consequence of legislative gaps that resulted in a failure to realize the right to information on hazardous substances. As noted in his previous report to the Human Rights Council, information on potential impacts must be available and accessible in order for States to fulfil their duty to protect human rights, including the rights to life and health. While the Special Rapporteur views the implementation of the Act on the Registration and Evaluation of Chemical Substances as a positive development, he is concerned that the root cause of the problem has not been completely addressed, i.e. that hazard information was not generated by the chemical manufacturer to ascertain whether the chemicals were safe for their intended use.

42. The Special Rapporteur notes the obligation of the Republic of Korea to realize the right of victims of hazardous substances to an effective remedy.[14] Part of an effective

[12] See A/HRC/32/53, case No. KOR 1/2016.
[13] Seoul Central District Court (2012gahap4515), 29 January 2015.
[14] International Covenant on Civil and Political Rights, art. 2 (3).

remedy is taking measures to prevent recurrence. Regrettably, the Special Rapporteur does not believe adequate measures have been taken by the Government or relevant businesses to prevent future recurrence.

43. The Special Rapporteur was concerned by the delayed investigation by the Government into three pending criminal charges regarding deaths due to toxic humidifier disinfectants. He notes with appreciation the recent efforts of the prosecutors to investigate the case and encourages a complete and through investigation.

44. Furthermore, the Special Rapporteur is concerned that not all victims may have access to an effective remedy, that all victims may not yet have been identified, and that adverse impacts as recognized among identified victims may not represent the entire range of suffering. Certain health impacts can have a long latency period and there may also be side effects of the medical treatments administered.

45. The Special Rapporteur is troubled by the Seoul District Court's decision that the Government exercised its duty of care. This domestic decision, pending appeal, diminishes the State's obligation to respect, protect and fulfil human rights, in particular, the duty to take measures to protect the rights to life and health. The judicial enforcement of human rights is fundamental, specifically the obligation of the Government to protect all persons from acts of private parties that impair the full enjoyment of human rights.

B. Workers

46. During the mission, the Special Rapporteur examined the rights of workers who may develop diseases or other injuries on account of their exposure to hazardous substances.

47. Workers in the Republic of Korea have the right to a healthy workplace. The right to health, stipulated in article 12 of the International Covenant on Economic, Social and Cultural Rights, extends to "underlying determinants of health", including healthy occupational and environmental conditions.[15] Additionally, preventing occupational accidents and disease is a fundamental aspect of the right to just and favourable conditions of work and closely related to the right to the highest attainable level of physical and mental health (art. 12 (2) (b) and (c) of the Covenant). Governments are obligated to adopt measures against occupational health hazards; to formulate, implement and periodically review a coherent national policy to minimize the risk of occupational accidents and disease; and to provide a coherent national policy on occupational safety and health services.[16] Furthermore, the Republic of Korea ratified the ILO Occupational Safety and Health Convention, 1981 (No. 155) in 2008.

48. Workers also have the right to an effective remedy for violations of their right to a healthy workplace. The Korean Workers' Compensation Insurance provides compensation for workers who are injured in the course of employment, as required under the Labour Standards Act.[17] This governmental insurance programme is operated by the Korea Workers' Compensation and Welfare Service, established by the Industrial Accident Compensation Insurance Act.[18] The industrial accident compensation insurance is part of efforts by the Republic of Korea to realize the right to social security, including social insurance, pursuant to its obligation under article 9 of the International Covenant on

[15] Committee on Economic, Social and Cultural Rights general comment No. 14 (2000) on the right to the highest attainable standard of health, para. 11.

[16] Ibid., para. 36.

[17] Act No. 9038 (entered into force on 28 March 2008).

[18] Act No. 4825 (entered into force on 22 December 1994).

Economic, Social and Cultural Rights and other treaties.[39] This right encompasses the right to access and maintain benefits as a result of lack of work-related income caused by sickness, disability or employment injury, among other things.[40]

49. According to the Industrial Accident Compensation Insurance Act, work-related diseases are defined as those which occur in the handling of, or exposure to, elements, including chemical substances, that could harm a worker's health in the course of employment (art. 37). In the event of work-related injury, disease, disability or death, the Government pays industrial accident compensation insurance benefits in accordance with the Act. A claim for industrial accident compensation is determined by a three-step process of industrial accident investigations by the Korea Workers' Compensation and Welfare Service, epidemiological surveys by the Korea Occupational Safety and Health Research Institute, and deliberation by the Committee on Occupational Disease Judgement.

50. Workers (and their unborn or newborn children) in various sectors are at an elevated risk of adverse health impacts from chronic exposure to toxic chemicals that may not manifest as a disease for several years, as well as accidents involving hazardous substances such as leaks, spills and explosions.

I. Worker exposure: electronics manufacturing

51. There is a long history of illness among workers in the electronics sector as a result of exposure to toxic chemicals.[41] For example, a study of nearly 32,000 workers at IBM between 1969 and 2001 showed that "male manufacturing workers were around 60-80 per cent more likely to have died from cancers of the kidney, skin, brain and central nervous system".[42] Given the prominent role of electronics in the Republic of Korea in recent decades, the Special Rapporteur paid close attention to how the Government and businesses were protecting and respecting the human rights of workers in the electronics sector to a safe and healthy workplace.

52. In the electronics industry, chemical substances are used in the manufacture of devices, including in displays, semiconductor chips, casings and batteries and other component materials. There is a significant likelihood that workers may be exposed to hazardous substances, which can lead to serious health impacts such as cancer, infertility, birth defects, respiratory illness and disruption of hormone (endocrine) systems.

53. Former workers in the electronics industry in the Republic of Korea began to be diagnosed with leukaemia around 2005. Yumi Hwang, a former Samsung Electronics employee, died of acute myeloid leukaemia in March 2008. She was diagnosed 20 months after she began working, at the age of 19, as an operator in production line No. 3 at the Samsung Electronics Giheung Plant.[43]

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[39] Universal Declaration of Human Rights, arts. 22 and 25 (1); International Convention on the Elimination of All Forms of Racial Discrimination, art. 5 (e) (iv); Convention on the Elimination of All Forms of Discrimination against Women, arts. 11 (1) (e) and 14 (2) (c); Convention on the Rights of the Child, art. 26; International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families, art. 27; and Convention on the Rights of Persons with Disabilities, art. 25. The Special Rapporteur notes that the Republic of Korea has not yet ratified the ILO Employment Injury Benefits Convention, 1964 (No. 121).

[40] Committee on Economic, Social and Cultural Rights general comment No. 19 (2007) on the right to social security, para. 2.

[41] See e.g. *Challenging the Chip: Labor Rights and Environmental Justice in the Global Electronics Industry*, Ted Smith and others, eds. (Temple University Press, 2006).

[42] www.nature.com/news/2006/061016/full/news061016-13.html.

[43] In 2013, Ms. Hwang's story was made into a movie called *Another Promise*.

54. As of January 2015, more than 350 former workers in the electronics industry, of which approximately 130 have died, had alleged that they had developed various diseases.[44] Victims had suffered from cancer, including lymphoma, malignant brain tumours, myelogenous leukaemia and non-Hodgkin's lymphomas, as well as aplastic anaemia, reproductive abnormalities and other health impacts. All former workers described to the Special Rapporteur are young females, including several in their early twenties. With many female workers of childbearing age, the alleged victims extend to the children of former workers. For example, the Special Rapporteur heard from a mother who had been pregnant during her employment and subsequently given birth to a child with birth defects.

55. The Special Rapporteur heard testimony from former Samsung workers (all women) and their family members about tasks performed in the manufacture of semiconductor chips, such as dipping semiconductors into a chemical solution by hand to remove unnecessary parts and manually sorting and testing chips under high temperatures or voltages, releasing fumes. Former workers explained that they would still smell fumes from the workplace long after returning home. Neither the former workers nor the family members of the deceased could name the substances they had used in the workplace. The former workers of Samsung Electronics also described the pressure that they worked under at the time to meet production targets. They explained that they were often in a state of chronic fatigue and stress due to their 12-hour rotating shifts, working six days a week in addition to preparing for regular mandatory exams outside of working hours (unpaid). They described the constant pressure placed on them to train and to pass tests to perfect their workmanship, along with pressures not to unionize and insufficient training on chemical safety.

56. Samsung would not disclose which substances were used during the time of employment of the alleged victims, claiming that it was confidential business information. Samsung explained that it does require suppliers to submit a letter of warranty that chemical formulas purchased do not contain hazardous substances. The Special Rapporteur reiterates that, under international laws, global policy frameworks and national law, health and safety information on hazardous substances should not be confidential.[45] Samsung Electronics claims no hazardous substances are used in its production processes. Information was not provided by the company to justify this claim, clarify the categorization of "hazardous" or to explain if and when changes to chemicals used in production processes were implemented.

57. There is strong evidence that hazardous substances are used in electronics manufacturing. Apple Inc. has stated that it has eliminated or plans to eliminate the use of certain hazardous substances in the production of its electronics. Of note, many of these substances were used in Apple's electronics supply chain during the period of employment of the alleged victims at Samsung Electronics.[46] Also, Apple has stated that it has yet to phase out certain hazardous substances in power cords in the Republic of Korea due to an inability to obtain Government approval.[47] The Special Rapporteur is deeply concerned about the withholding of or failure to generate information about toxic chemicals in order to shield corporate liability.

58. In addition to the lack of transparency about hazardous substances used or released in the workplace, critical information about alleged victims was not disclosed by the

[44] See http://cafe354.daum.net/samsunglabor.

[45] A/HRC/30/40.

[46] http://qz.com/663763/six-of-the-worst-toxins-apple-says-it-has-phased-out-of-its-products. (Lead was phased out in 2006, mercury in 2009, brominated flame retardants from "thousands of parts" in 2008, and beryllium in "new" products.)

[47] Ibid.

Government, businesses or civil society to the Special Rapporteur. However, the Special Rapporteur had the opportunity to meet with several victims and victims' family members, Samsung Electronics, the Mediation Committee, and members of the Government. The following summary is based on those discussions and subsequent follow-up.

59. In response to the case of Ms. Hwang and others, in 2007 the Korea Occupational Safety and Health Research Institute carried out an epidemiological investigation at the Samsung Electronics Giheung Plant but did not find any carcinogen that might have caused leukaemia. Subsequently, in 2008, the Institute carried out a public health study on 200,000 workers in the semiconductor industry, with a result that showed no statistical significance for leukaemia.

60. Based on the result of the above-mentioned investigations in 2007 and 2008, the Korea Workers' Compensation and Welfare Service decided that the health impacts on Ms. Hwang and other semiconductor workers did not qualify as an industrial accident. Since June 2007, out of 54 Samsung employees who filed for industrial accident compensation, three applications were accepted, 25 were not accepted and the rest are undecided.[48] The Service rejected applications from several former semiconductor workers suffering from occupational disease in adherence to its strict requirement of a causal relationship based on medical evidence and following a requisite investigation.

61. In 2009, at the request of the Ministry of Labour, Samsung Electronics Co. Ltd., SK Hynix, and Amkore Technology Korea Inc. commissioned the Seoul National University R&DB Foundation to evaluate the health hazards of their manufacturing facilities and to develop and implement improvement plans accordingly.

62. According to the Government, it has engaged in some preventive activities such as providing safety manuals for semiconductor manufacturing workers, helping a semiconductor business establish a health management task force to ensure implementation of a health management plan, and forming a health management and assessment committee for the semiconductor sector to assess whether each business has properly improved its health management and encourage it to fix insufficiencies.[49]

63. Apart from these investigations and the industrial accident compensation insurance scheme, the Special Rapporteur notes a surprisingly low level of action taken by the Government, the primary duty bearer when it comes to respecting, protecting and fulfilling the rights of workers and of victims to an effective remedy. The Special Rapporteur observed considerably more active involvement by relevant business entities, namely, Samsung Electronics and SK Hynix, in the attempt to resolve the dispute with former workers.

64. In 2008, Samsung Electronics and Supporters for the Health and Rights of People in the Semiconductor Industry (SHARPS, also known as Banolim) started bilateral negotiations. However, disagreement between former workers during the prolonged negotiations led to the formation of a second group, the Samsung Occupational Disease Family Committee (Family Committee). The Family Committee proposed a mediation process, and in December 2014 the Mediation Committee, comprising three independent experts, was established.

65. After eight months of negotiations, the Mediation Committee proposed a three-part recommendation: prevention of recurrence, compensation and apology. To implement the prevention and compensation parts, the Mediation Committee proposed the establishment

[48] Response from the Ministry of Employment and Labour dated 22 October 2015.
[49] Ibid.

of an independent organization with 100 billion won (S85.8 million) provided by Samsung Electronics.

66. In response to this recommendation, the Family Committee expressed the view that speedy compensation should be a priority, and rejected the establishment of the independent organization. Samsung Electronics did not accept the proposal. In July 2015, Samsung Electronics announced that it would create an internal, unilateral and company-run fund to provide compensation. That compensation committee was to be in accordance with the recommendation by the Mediation Committee, and included all disease groups recommended by the Mediation Committee, except miscarriages and infertility, and included both employees of Samsung Electronics and on-site contractors.

67. Over 150 applications were made to Samsung Electronics for compensation. As of May 2016, Samsung Electronics claimed it had compensated 110 former workers affected with the specified diseases and had physically presented apology letters from the chief executive officer to those subject to compensation.[70] The Special Rapporteur understands there are concerns regarding how the compensation process adhered to the recommendations of the Mediation Committee and encourages all parties to increase transparency and participation in this regard.

68. Also in January 2016, Samsung Electronics reversed its previous position on "prevention". It agreed with other parties to establish a three-member Ombudsman Committee to conduct an audit of the efforts of Samsung Electronics relating to prevention and propose recommendations for improvement. The Special Rapporteur welcomes the establishment of the Ombudsman Committee, and looks forward to its implementation with both transparency and meaningful public participation by all stakeholders.

69. Following the progress and development of the Samsung Mediation Committee, SK Hynix established an independent industrial public verification committee composed of seven external experts. Since then, the SK Hynix committee has carried out epidemiological studies and noted the difficulty of establishing a causal relationship between the working environment and occupational diseases such as cancer and certain rare diseases. The SK Hynix committee recommended that the scope of compensation include all disease that could in any way be related to the semiconductor industry, as well as miscarriages and rare incurable diseases.

70. In November 2015, SK Hynix announced that it would accept all of the recommendations made by its committee and that it would establish an internal compensation committee composed of external experts. The Special Rapporteur welcomes this development, in particular, the acceptance by SK Hynix of including miscarriage and infertility in the scope of the agreement, in line with safety in working conditions, including the safeguarding of the function of reproduction. As of January 2016, SK Hynix had identified and compensated 39 former workers. It is unclear what measures are or will be in place to prevent recurrence.

71. The long path to resolving these cases illustrates the considerable difficulty workers face in demonstrating a sufficient causal relationship to realize their right to an effective remedy for the impacts of toxic chemicals.

72. For a disease to be recognized as an occupational disease under article 5 (1) of Industrial Accident Compensation Insurance Act by the Korea Workers' Compensation and Welfare Service, there must be a "proximate causal relationship" between the worker's duties and disease. Article 34 of the Enforcement Decree of the Industrial Accident

[70] Response received from Samsung Electronics dated 29 January 2016, e-mail dated 30 May 2016.

Compensation Insurance Act stipulates the specific conditions, in particular, that "causal relationship between the work-related injury and the disease should be medically recognized".

73. In contrast to the strict standard applied by the Korea Workers' Compensation and Welfare Service pursuant to article 34 of the Enforcement Decree of the Industrial Accident Compensation Insurance Act, courts in the Republic of Korea take a more lenient approach to the issue of causation. The Supreme Court has ruled that the claimant has the burden of proving the causal relationship, however, the causal relationship need not be proven medically or scientifically but can be inferred from the consideration of various situational factors.[51] Consideration of all the circumstances, such as the health of the worker at the time of employment, possible explanations for the disease, whether any hazardous substances existed in the workplace and the amount of time the worker spent in the workplace, makes possible the conclusion that there is a proximate causal relationship between the worker's duties and the disease.

74. In 2014, the Seoul Administrative Court held that the deduction can be made that there is a proximate causal relationship between the former workers' diseases and their duties.[52] The Supreme Court also said that the question of whether a proximate causal relationship exists should be judged on the basis of the health and physical conditions of the worker concerned and not an average person.[53] Most recently, the Seoul Administrative Court reversed the decision of the Korea Workers' Compensation and Welfare Service and acknowledged ovarian cancer to be an occupational disease. It further stressed that, for rare diseases such as ovarian cancer, a more relaxed standard for assessing causality should be applied.[54]

75. Noting the disparity among the Korea Workers' Compensation and Welfare Service industrial accident compensation scheme, decisions by courts in the Republic of Korea, and the dispute resolution committees established by Samsung Electronics and SK Hynix, the Special Rapporteur is concerned about the difficulty in accessing compensation under that scheme due to the high burden of proof imposed on the claimants. The Government's criteria for work-related diseases were revised in 2013. The Special Rapporteur emphasizes that States are obligated to refrain from interfering with the enjoyment of the right to social security.[55] The burden upon the claimant to prove causation between the health impacts from which workers suffer and the hazardous substances in the workplace can be a significant inconvenience and obstacle, often because of difficulty in using or accessing information.

2. Chemical disasters

76. The number of environmental incidents, such as chemical disasters and oil spills, more than doubled between 2004 and 2010 (from 45 cases to 102 cases), while the number of chemical accidents rose from 13 incidents on average per year to over 70 cases in 2013.[56] The Government explains that the number increased because, after the Gumi hydrofluoric

[51] Supreme Court of Korea (99du10103), 26 January 1999, and Supreme Court of Korea (2003du12530), 9 April 2004.

[52] Seoul Administrative Court (2013gudan8751), 7 November 2014.

[53] Supreme Court of Korea (2000do4538), 27 July 2001, and Enforcement Decree of Industrial Accident Compensation Insurance Act, art. 34 (4).

[54] Seoul Administrative Court (2013guhap53677), 28 January 2016.

[55] Committee on Economic, Social and Cultural Rights general comment No. 19, para. 41.

[56] Ministry of Environment and Korea Environment Institute, "Liability, compensation and relief system for damages from environmental pollution", No. 38, p. 5.

acid leak in 2012, the Government asked companies to immediately report chemical accidents and public awareness of chemical safety increased.

77. One major chemical accident was the hydrofluoric acid leak in Gumi, which occurred on 27 September 2012 at the Hube Global chemical plant, killing 5 workers and injuring 18 others, including plant employees and emergency personnel. The damage on property, including restoration costs, amounted to 55.4 billion won.

78. Another accident took place at the Samsung Electronics plant in Hwaseong City, where hydrofluoric acid first leaked on 27 January 2013. As a result, one person died and four were injured. Subsequently, on 2 May 2013, three external contract workers were partially exposed to diluted hydrofluoric acid at Samsung's semiconductor manufacturing facility in Hwaseong City. The workers received immediate first aid attention on site and were admitted to hospital for further examination.

79. Other accidents include hydrochloric acid leakage in Sangju (12 January 2013), an explosion of a sulphur removal reactor in Yeosu (25 August 2004), leakage of approximately three tons of hydrochloric acid while it was being transported on a highway in Chungnam (5 May 2004) and leakages of chlorine gas in Siheung (17 August 2006).

80. The Special Rapporteur welcomes the recent enactment of the Liability Act to help ensure that victims have access to an effective remedy, as well as legislative changes to prevent accidents. He also notes the studies and measures implemented by Samsung Electronics to prevent the recurrence of similar accidents. He encourages the State and businesses to ensure that protections apply to both employees and contractors.

C. Children

81. Children are among those most at risk of harm from toxic and otherwise hazardous substances. Children have higher levels exposure, as they breathe in more air and consume more food in comparison with their body mass. Exposure during sensitive periods of development — fetal and early childhood — may have a serious impact on the physical and mental health of children.

82. The Special Rapporteur notes the State's obligation to realize the right of children to the highest attainable standard of health, taking into account environmental factors. The Committee on the Rights of the Child has emphasized the importance of regulation of business in order to protect the rights of children, including from the effects of environmental harm.[11] States must regulate and monitor the environmental impact of business activities that may compromise children's right to health.[12]

83. The Special Rapporteur welcomes the efforts made to identify hazardous substances contained in objects with which children frequently come into contact and to minimize children's exposure to those substances.[13] However, the Special Rapporteur notes a fragmented and complex allocation of responsibilities across numerous ministries for protecting children from hazardous substances, which may have contributed to protection gaps.

[11] Committee on the Rights of the Child general comment No. 16 (2013) on State obligations regarding the impact of the business sector on children's rights, para. 31.

[12] Committee on the Rights of the Child general comment No. 15 (2013) on the right of the child to the enjoyment of the highest attainable standard of health, para. 49.

[13] See generally, I. COREA, *Environmental Review 2015*, vol. 3, chap. 6, p. 5.

84. Several of the cases discussed in the present report describe impacts on the rights of children, raising questions regarding the protection measures put into place by the Government. One situation brought to the attention of the Special Rapporteur was the case of artificial grass on school playgrounds.

85. In 2006, the Ministry of Education and the Korea Sports Promotion Foundation implemented a policy to install artificial grass in school playgrounds. In 2006, media reports claimed that heavy metal had been found in the artificial grass.[60]

86. The Ministry of Environment and the Ministry of Education carried out inspections in 2007 and 2009. In 2010, a standard for the maximum amount of heavy metals permissible in artificial grass was established by the Korean Standards Association under the Ministry of Trade, Industry and Energy. Before this, no standard had existed.

87. In 2014, several years after the Government's inspections, the Korea Sports Promotion Foundation and the FITI Testing and Research Institute tested artificial grass in 1,037 schools. These schools had installed artificial grass prior to the adoption of the standard in 2010. The inspection tested for toxic substances such as lead, cadmium, mercury, hexavalent chromium, four types of volatile organic compounds and eight types of polycyclic aromatic hydrocarbons. These substances can lead to cancer and can have harmful impacts on reproduction.[61] In 2014, the tests found toxic substances present in the artificial grass of 941 schools, 173 of which had levels that were found to be above the permissible levels specified by the Korean Standards Association.[62] In response, the Ministry of Education and the Ministry of Culture, Sports and Tourism jointly provided funding to replace the artificial grass at the 173 schools, which was completed in May 2016.

88. The Special Rapporteur expresses grave concern that children attending elementary schools with toxic artificial grass are likely to have been regularly exposed to unquestionably hazardous substances, some with no known safe level of exposure, for up to six years. It is troubling that the artificial grass was installed without a standard for permissible levels of toxic chemicals, and that nearly 200 surfaces that exceeded the standard remained in schools after the standard was established, despite government investigations. Deterioration of the artificial grass over time may result in increased risk of exposure for children as substances are liberated.

89. Artificial grass is one of thousands of products that may contain hazardous substances to which children may be exposed. The Special Rapporteur emphasizes that robust monitoring of products, water, food, soil and air for hazardous substances is important before they are used in order to guarantee a healthy and safe environment for children.

D. Communities living close to hazardous conditions

90. The Special Rapporteur wishes to reiterate the interpretation of the right to health in the International Covenant on Economic, Social and Cultural Rights, as comprising the protection of a population against exposure to harmful substances, such as radiation and

[60] Media coverage by Korean Broadcasting System, December 2006.

[61] See e.g. WHO fact sheets on cadmium (2010) and mercury (2016), available from www.who.int/ipcs/features/cadmium.pdf?ua=1 and www.who.int/mediacentre/factsheets/fs361/en.

[62] Full results available (in Korean) from www.kgreens.org/?post_type=news&p=3542.

toxic chemicals, or other detrimental environmental conditions that directly or indirectly impact human health.[51]

91. Since 2003, exposure to pollutants and health impact surveys have been conducted for residents of industrial complexes with concerns regarding environmental diseases or high pollutant emissions.[52]

Manufacturing facilities

92. During the visit, the Special Rapporteur met with several community members greatly impacted by factories operating close to their homes. Often, it is the marginalized and those living in vulnerable situations who are most affected by the establishment of industrial factories and urban planning undertaken to facilitate the revitalization of the economy.

93. A prominent example of local residents suffering from severe pollution is the current situation in the city of Gimpo. As of 2013, there were more than 6,000 registered factories and an estimated 4,000 unregistered factories in Gimpo.[53] The Special Rapporteur saw houses and rice fields surrounded by factories, many just a few metres away.

94. There has been a proliferation of small factories in Gimpo in recent years, primarily due to relaxed licensing requirements, which allow all types of factories to be located on the condition that certain hazardous substances will not be emitted. The deregulation commenced in 2008 as an initiative to promote economic activity and to revitalize the economy.[54] The licensing process is based solely on information submitted by the applicant.

95. The Special Rapporteur heard residents' concerns about the impacts of soil and groundwater contamination on subsistence farms and famous regional crops, such as rice, and their health concerns. He observed the presence of magnetic metal shavings inside residents' homes, and heard allegations of intimidation and violence against concerned residents by business owners. There are no safety zones demarcating residential areas and factories. As a result, fine metal filings accumulate throughout homes, rendering them uninhabitable.

96. Epidemiological studies by the Government in 2013 and 2015 found elevated levels of toxic chemicals such as arsenic, copper, nickel and zinc in certain soil samples. Urine and blood tests of residents also showed the presence of manganese and nickel at above-average levels.[55]

97. When the Special Rapporteur met with local Government officials in Gimpo City, he observed the completely overstretched and limited human and technical resources available to monitor approximately 10,000 factories to prevent harm, respond to complaints from residents and enforce relevant laws.

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[51] Committee on Economic, Social and Cultural Rights general comments No. 4 (1991) on the right to adequate housing, No. 12 (1999) on the right to adequate food and No. 15 (2002) on the right to water.

[52] ECOREA, *Environmental Review 2015*, vol. 3, chap. 6, pp. 2-3.

[53] Factories smaller than 500 m² are not required to register. (Hong Cheol Kim, "A case study on environmental injustice in non-urban planned management area and its solutions", *Seoul National University Public Interest and Human Rights Law Review*, vol. 15, p. 11.)

[54] For instance, the deletion of article 5 on limiting the location requirement for factories that may cause environmental pollution in the guidelines for development of industrial complexes.

[55] Hong Cheol Kim, "A case study on environmental injustice in non-urban planned management area and its solutions", p. 18.

Power plants

98. The Special Rapporteur visited a residential area near coal-fired thermal power plants in Dangjin, a city in Chungcheong province. The first petrochemical complex was built in 1991; subsequently, in 1999, Dangjin Thermal Power Plant started operations. Dangjin Thermal Power Plant, under Korea East-West Power Co. Ltd., is currently operating eight coal-fired thermal power plants of a 500,000 kilowatt scale and is planning to construct an additional generator of a 1 million kilowatt scale by 2016. Nearly 32,000 tons of coal are burned in Dangjin every day. According to Chungcheongnam-do province's 2014 health effects investigation in five areas, residents near Dangjin's coal-fired thermal power plants have slightly higher levels of heavy metals in their blood and urine, compared with two control groups in Cheongyang and Hongseong, in Chungcheong province. However, their levels were lower than the maximum safe levels under WHO standards for heavy metal concentrations in human body.[68] Nevertheless, the victims allege health damages, such as bronchial asthma, pneumonia and dermatitis, linked to hazardous substances other than heavy metals.

99. In 2014, nuclear energy produced 30 per cent of electricity in the Republic of Korea.[69] As of 2015, 25 nuclear power plants were in operation in the country. The exclusion area is 560-700 meters from the centre of the nuclear plant for light-water reactors and 914 meters for heavy-water reactors. However, as this distance is measured from the centre of the plant, many civilians live close to nuclear power plant sites. According to a 2010 statistical survey, the number of residents living within 10 km of a nuclear plant was roughly 11,000 for Wolseong, 25,000 for Gori, 12,000 for Uljin and 13,000 for Yeonggwang.[70]

100. The possible impacts from such proximity include cancer and other adverse health impacts resulting from the leakage of radioactive substances like tritium into drinking water and soil. The risks of low-dose exposure to hazardous substances, particularly for children, are a matter of scientific debate. A local resident living near Gori nuclear power plant for 20 years and his wife who had been diagnosed with thyroid cancer filed a damage suit against a Korea Hydro and Nuclear Power plant. The Court ordered the plant to pay $12,600 in damages.[71] The appeals process is ongoing. The plant argues that there is no confirmed causal relationship between nuclear power plants and the occurrence of thyroid cancer.

101. Radioactive wastes generated from nuclear power plants has been stored in temporary storage in nuclear power plant sites; however, with the saturated capacity of temporary storage, a facility for the wastes was required. Gyeongju applied to host an intermediate-level radioactive waste disposal facility site and was selected after a referendum among local citizens in four cities in November 2005. The Special Rapporteur had the opportunity visit the nuclear disposal facility in Gyeongju and learned about the safety measures in place to guarantee the health and safety of the residents living in the vicinity. The Special Rapporteur also heard concerns regarding the rapidly decreasing storage capacity for high-grade nuclear waste.

Military bases

102. Since 1962, the military base located next to Daechun beach in Boryeong, Chungcheongnam-do, has been operational and used by United States Forces Korea and the

[68] Information received from a civil society organization.
[69] www.knca.or.kr/eng/index.html.
[70] www.nei.org/Knowledge-Center/Nuclear-Statistics/World-Statistics.
[71] Eastern Branch of Busan District Court (2012gahap100380), 17 October 2014.

Republic of Korea Air Force. The shooting range borders two communities: Shinheuk-dong (inhabited by 42 families, or approximately 70 people) and Samhyun-ri (inhabited by 100 families, or approximately 250 people).

103. Since 2008, local residents have officially reported pollution and 79 cases of cancer among approximately 320 residents. The Institute for Occupational and Environmental Health published research that compared major cancer occurrence rates in residents of Boryeong and in the general population. It was discovered that lung cancer rates were three times higher and stomach and liver cancer were five times higher among Boryeong residents. The Government has conducted environmental surveys on the region, finding two wells with a substance "reasonably anticipated to be a human carcinogen",[72] but has not been able to determine the cause of the high rate of cancer in the region. No information was provided on measures taken to realize an effective remedy for those suffering from cancers and other disorders.

104. The Special Rapporteur is concerned that the proximity of factories, power plants, military bases and other facilities that may release hazardous substances is adversely affecting the right of nearby residents to an adequate standard of living, including adequate food, housing and continuous improvement of living conditions.[73] The Special Rapporteur is concerned that the right of residents to housing, in particular with regard to the habitability and location of housing, are not protected.

V. Conclusions and recommendations

105. **The Special Rapporteur commends progress made by the Government of the Republic of Korea in reducing the impacts of toxic substances, for recent legislative changes in response to major chemical disasters, and its stated commitment to protect and promote human rights. In the spirit of cooperation and dialogue, the Special Rapporteur recommends that the Government take decisive steps to implement the recommendations outlined below to minimize the negative impact of hazardous substances and wastes on human rights.**

106. **With regard to legislation, the Special Rapporteur recommends that the Government of the Republic of Korea:**

(a) **Implement legislation, including the Liability Act and the Act on the Registration and Evaluation of Chemical Substances, while completing a thorough assessment of current legislative frameworks and enforcement capacities to prevent human rights impacts and ensure access to an effective remedy for harm, paying attention to those most at risk and bearing in mind recent cases of impacts in the Republic of Korea and recommendations by the national human rights institution;**

(b) **Ensure that all laws and policies concerning hazardous substances and wastes provide the greatest protection to those who are at the greatest risk of harm, including children, women, the elderly, communities near sources of pollution or contamination, workers and others who are at elevated risk of harm;**

(c) **Monitor and enforce legislation requiring businesses to conduct human rights due diligence on the potential impacts of hazardous substances;**

[72] Tetrachloroethylene (PCE or perc), which is classified as such by the United States National Toxicology Program (2013).

[73] International Covenant on Economic, Social and Cultural Rights, art. 11.

(d) Urgently increase efforts to prevent harm to communities living near sources of ongoing pollution or contaminated sites, and to ensure that victims in these areas realize their right to an effective remedy, including compensation and remediation or relocation, consistent with human rights principles;

(e) Undertake a robust study on the existing recourse of victims, including workers and consumers, to an effective remedy for harm that may be due to hazardous substances and wastes, paying particular attention to the burden placed on victims to establish causation, and develop and implement solutions to address challenges facing victims in accessing an effective remedy, in consideration of the recommendations contained in the findings of that study and those of the national human rights institution, as recommended below;

(f) Ensure that information is available to prevent exposure to hazardous substances, protect human rights and ensure that victims have the information necessary to realize their right to an effective remedy in administrative and judicial systems. The Special Rapporteur underlines that States have a duty, and businesses a responsibility, to ensure that information about hazardous substances is available and accessible, and that it functions to protect the rights of everyone;

(g) Increase efforts to ensure that health and safety information about hazardous substances is never confidential, and for this purpose ensure the enforcement of existing legislation or the strengthening of said legislation where necessary;

(h) Increase efforts to identify the intrinsic hazards of industrial chemicals used or produced in, or imported into, the country, in particular by increasing its efforts to identify intrinsic hazards due to chronic exposure, including cancer and endocrine disruption, the combination effects of exposure to mixtures of toxic chemicals, and the impacts of childhood exposure during critical periods of development;

(i) Establish a centralized mechanism to monitor all human rights impacts of hazardous substances and wastes, paying particular attention to children, women, workers in all sectors and older persons, and guarantee that adequate and comprehensive prevention measures are taken as a result;

(j) Expand support for victims of the deadly humidifier sterilizers;

(k) Give a broader mandate to the National Institute for Chemical Safety to ensure coherence and cooperation across ministries, including with respect to human rights principles;

(l) Ensure that sufficient resources are available for regional and local governments tasked with monitoring and enforcement of laws on pollution control;

(m) Ratify the Optional Protocol to the International Covenant on Economic, Social and Cultural Rights and take up the recommendations of the Human Rights Committee, especially on the right to unionize.

(n) Require that businesses in the Republic of Korea respect human rights, in both their activities and their business relationships, including international supply chains;

(o) Ratify the Basel Convention Ban Amendment;

(p) Ensure that the Ministry of Health plays an active role in preventing harm from hazardous substances and wastes.

107. **The Special Rapporteur recommends that the national human rights institution:**

(a) **Examine the challenges faced by victims of chronic exposure to hazardous substances, including workers and children, who may develop diseases many years after exposure, in establishing causation and accessing an effective remedy, and make recommendations to relevant ministries;**

(b) **Closely examine challenges presented by victims of hazardous substances in meeting their burden of proof in order to access an effective remedy under administrative and judicial proceedings.**

108. **The Special Rapporteur encourages all businesses operating in the Republic of Korea to implement the Guiding Principles on Business and Human Rights in their activities and business relationships, paying particular attention to the potential and actual impacts of toxic chemicals in their activities and supply chains.**

109. **The Special Rapporteur sincerely commends Samsung Electronics for its spirit of cooperation, openness and continuing dialogue with him. He acknowledges internal changes by Samsung Electronics and steps taken to realize the right of former workers to an effective remedy. He recommends that Samsung Electronics and other implicated businesses:**

(a) **Ensure that all former workers and contractors harmed by toxic chemicals in the manufacture of their products are indeed compensated, at a minimum according to recommendations of the Mediation Committee;**

(b) **Cooperate actively in good faith and with public participation with the Ombudsman Committee, and ensure that the resulting recommendations are fully implemented with transparency to prevent recurrence at Samsung Electronics and other companies in the electronics industry;**

(c) **Continue collaboration with human rights institutions nationally and internationally to share lessons learned and establish itself as a leading entity at the intersection of human rights and business operation, including with respect to toxic chemicals.**

110. **The Special Rapporteur welcomes the recent acknowledgements by Oxy Reckitt Benckiser and Reckitt Benckiser in May 2016 regarding their commitment to ensure that the victims of toxic humidifier sterilizers have access to an effective remedy. He recommends that Reckitt Benckiser:**

(a) **Ensure that all victims are identified and receive compensation;**

(b) **Implement measures that will prevent a recurrence of similar incidents, and share mistakes made and lessons learned with the global community so that other Governments and businesses may avoid similar mistakes;**

(c) **Ensure that all victims receive a sincere apology, permanent commemoration at a location of significance, and other elements of an effective remedy, including substantiated assurance of non-repetition;**

(d) **Provide all other aspects of an effective remedy as warranted by subsequent investigations.**

111. **The Special Rapporteur is deeply appreciative of the advocacy of civil society on behalf of the affected victims he encountered during the mission. He encourages the Government and the National Human Rights Commission to protect the rights of these human rights defenders to champion the cause of victims of toxic chemicals in**

the future. He encourages civil society actors to continue their efforts while also looking to the impact of business activities and business relationships of the Republic of Korea abroad.